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Extravagant Fiction Today — Cold Fact Tomorrow: A Rationale for the First American Science-Fiction Magazines*

By Paul A. Carter

Science-fiction has of late acquired an air of respectability. The prestigious *International Encyclopedia of the Social Sciences,* published in 1968, contains an 8-page article on "Social Science Fiction"; *Time* has admitted the subject to its book review section; and science-fiction titles appear regularly in the *Standard Catalog Series,* the librarians' guide to books deemed proper for general library acquisition.[1] Science-fiction writers—Ray Bradbury, Arthur Clarke, Robert Heinlein—were interviewed the morning after the landing of Apollo 11, and heard with the respect accorded by CBS that same day to Henry Steele Commager, Norman Mailer, and sundry scientists and theologians. But it had not always been so. In 1940 Heinlein, in his third published story "Requiem"—a touching account of an old man thwarted in a life-long dream of personally flying to the moon who manages a modest triumph at the story's end by contriving to go and die there—made his hero at one point endure a conversational admonition which Heinlein surely had not had to invent: "The trouble with you is, you read too many of those trashy magazines. Now, I caught my boy reading one of 'em just last week and dressed him down proper. Your folks should have done you the same favor."[2]

The redoubtable Hugo Gernsback, who founded the first periodical in the world devoted solely to science-fiction and was thus the progenitor of all those trashy magazines, compared such hostility in all seriousness to the superstitious bigotry of the Middle Ages. "It is most unwise in this age to declare anything impossible," Gernsback defiantly affirmed in 1926, "because you may never be sure but that even while you are talking it has already become a reality . . . If only five hundred years ago (or little more than ten generations), which is not

a long time as human progress goes," Gernsback wrote, "anyone had come along with a story wherein radio telephone, steamships, airplanes, electricity, painless surgery, the phonograph, and a few other modern marvels were described, he would probably have been promptly flung into a dungeon . . . There are few things written by our scientifiction writers, frankly impossible today, that may not become a reality tomorrow."[3]

The theme of prophecy disguised as fiction was stated in the maiden editorial for *Amazing Stories,* April, 1926, and it was a *leitmotiv* to which the crusading editor was to return again and again. From the magazine's first issue onward Gernsback's editorials, strategically visible to the reader on an odd-numbered page facing the table of contents, proudly carried the slogan "Extravagant Fiction Today—Cold Fact Tomorrow." The founder of *Amazing Stories* never recanted this faith. For the magazine's thirty-fifth anniversary issue, in 1961, Gernsback contributed a guest editorial which began with the categorical assertion: "As we look back over the vista of modern science fiction, we are struck by the fact that the outstanding stories in the field—the ones that endure—are those that almost invariably have as their wonder ingredient true or prophetic science."[4]

Not only was science-fiction perfectly legitimate as extrapolation, Gernsback suggested in his 1926 manifesto; it might even become a positive incentive to discovery, inspiring some engineer or inventor to develop in the laboratory an idea he had first read about in one of the stories. Moreover, the stories were a comparatively painless way of imparting today's scientific and technical lore: "They supply knowledge that we might not otherwise obtain—and they supply it in a very palatable form."[5] Although his editorial style at times irritatingly blended the note of Chautauqua uplift with that of the hard sell, Hugo Gernsback does seem quite sincerely to have conceived of his mission as a species of popular education, in an age when a college degree was not yet the expected goal of most young Americans.

Gernsback's readers and writers quickly picked up the editor's thesis that science-fiction was also a means for learning science. "Print all scientific facts as related in the stories, in italics," one eager reader of *Amazing Stories* suggested.[6] The magazine's compositors did not take that advice literally, but many an author did provide brief cram-courses in the requisite science or engineering, sometimes more than the story really required; and artist Frank R. Paul filled the generously large pages of *Amazing Stories* (and its companions, *Amazing Stories Quarterly* and a short-lived *Amazing Stories Annual*) with imaginative and at the same time faithfully literal pen-and-ink renderings of their fictional technology. Early in 1929 Gernsback lost control of the new magazines he had founded, in a merciless publishing war with Bernarr Macfadden;[7] but Thomas O'Conor Sloane, his managing editor—a chemistry Ph.D. and the son-in-law of Thomas A. Edison—stayed on under the new owners (Teck Publications), and continued very much in the founder's didactic tradition.

"Readers may complain of the wild visions exploited in some science stories, where the authors seem to deal in absurdities," Sloane wrote in a 1930 editorial. "Such people should read Eddington's latest paper"—referring to a

forecast which that well-known physicist had made, of a power station operated by the energy contained in a teacup of water—"and see if the wildest imaginings of romancers go much beyond it."[8] Ten years after the birth of *Amazing Stories*, under Sloane's editorship some of the characters in the stories were still lecturing each other as if they were in school classrooms. Gathered around a campfire four days by canoe into the wilds of northern Quebec, in Edmond Hamilton's somewhat crude but chillingly effective story "Devolution" (1936), two of the campers sit digesting their hotcakes and bacon while a third, having finished his evening pipe, fills them in on the theory of evolutionary mutation: "The germ-cell of every living thing on earth contains in it a certain number of small, rod-like things which are called chromosomes. These chromosomes are made up of strings of tiny particles which we call genes . . . "[9]

The literary damage which could be done to a work of fiction in this fashion was obvious, and the science-fiction writers have become very much aware of the problem: "One of the special delights of writing science fiction is mastering the art of interweaving science and fiction; in keeping the science accurate and comprehensive without unduly stalling the plot," writes Isaac Asimov. "This is by no means easy to do, and it is as easy to ruin everything by loving science too much as by understanding it too little."[10] From the standpoint of *belles-lettres* it is probably just as well that editors Gernsback and Sloane often broke their own rules. As early as July, 1926, *Amazing Stories* reprinted H.G. Wells's "The Man Who Could Work Miracles," a delightful little yarn but one which is classifiable as "science-fiction" only by stretching the term a good deal. In that same issue of the magazine, in a letter to the editor, the young science-fiction writer G. Peyton Wertenbaker warned: "The danger that may lie before *Amazing Stories* is that of becoming too scientific and not sufficiently literary." Having in mind other kinds of fiction that were being published in 1926 (*e.g., The Sun Also Rises*), some outside readers might have considered that Wertenbaker's definition of "literary" did not quite fill the bill either; for science-fiction, Wertenbaker wrote, "is designed to reach those qualities of the mind which are aroused only by things vast, things cataclysmic, and things unfathomably strange."[11]

In September, 1927, *Amazing Stories* printed "The Colour Out of Space," by Howard Phillips Lovecraft, a writer whose work indeed dealt with things vast, cataclysmic, and unfathomably strange. Yet Lovecraft, a serious literary craftsman, anchored many of his own tales in a specific, usually New England, setting for verisimilitude; "The Colour Out of Space," for example, was set in the Central Massachusetts region then in the process of being flooded for Quabbin Reservoir. In a letter written within a few days of that story's acceptance Lovecraft argued that even in far-out interplanetary epics "the human scenes and human characters must be handled with unsparing realism." Conversely, however, he warned, the interests of realism would not be served in such stories by inventing "Martians" or "Jovians" who observed all the conventional terrestrial stereotypes, even as to nomenclature, "with an Indo-Germanic '---*a*' name for the Princess, and something disagreeable and Semitic for the villain."[12]

The shaft was aimed at *Weird Tales*, in which most of Lovecraft's fiction

was being published, but it could have been fired at Hugo Gernsback as well. Some months previously *Amazing Stories* had begun publishing Edgar Rice Burroughs,[13] best known to nonreaders of science-fiction as the author of *Tarzan of the Apes,* and in particular the *Amazing Stories Annual* for 1927 printed his novel *The Master Mind of Mars.* Burroughs's Mars was less immediately verifiable than his Africa, but even in those days before the Mariner probes it was obvious he had created a Mars that never was: a planet whose male inhabitants employed rockets and atomic energy but who usually settled their personal differences with swords, and whose egg-laying but otherwise pleasantly human females married Earthmen and lived happily ever after. H.G. Wells's Martians, those shuddersome "intelligences, vast, cool and unsympathetic," who assaulted mankind in *The War of the Worlds,* had not been like that at all.[14]

H.G. Wells's human scenes and human characters, on the other hand, were down-to-earth, both figuratively and literally. The effectiveness of many of his novels rests in part on their rootage in a concrete British milieu of hedge-rows and crooked streets;[15] even when the action moves off this planet, in *The First Men in the Moon,* the fabulous visions are filtered through the eyes of "Mr. Bedford," an archetypically commonplace lower-middle-class Englishman. Similarly Jules Verne's main theme was man; *From the Earth to the Moon* is memorable not only for the accuracy of some of its predictions (*e.g.*, that the lunar missile would be fired from Florida, in fact only about a hundred miles from the actual Apollo launch site), but also for the characters in his imagined "Gun Club of America" who decided upon the moon shot and carried it out, a refreshing collection of eccentrics by comparison with the prim bureaucracy of NASA. Novels by both Verne and Wells were reprinted in the early years of *Amazing Stories;* and although the new generation of science-fiction writers tended to take from the masters more their cosmic inventiveness than their perceptions of human nature, there were exceptions.

One was David H. Keller, a physician from back-country Pennsylvania with an almost Thoreau-like aversion to a society based on machine technology.[16] One of Keller's early science-fiction stories, "The Revolt of the Pedestrians," made the Lamarckian forecast that as man continued to use the automobile his legs would atrophy to the point of complete uselessness, and that technology would close the gap by providing all citizens with individual-sized "autocars."[17] (Babies, in this world of the future, went through a phase for a few months of trying to use their legs, but it was something they were expected to get over, like thumb-sucking.) The magazine's heading for this story was determinedly Gernsbackian: "There is excellent science in this story, and if you do not believe that too much riding in cars is bad for you, just speak to your doctor." But that comment grossly misinterpreted the author's intention. The exact technology of a wholly motorized population—how, for example, did they manage school attendance, common meals, hospital care?—*could* have been validly made into science-fiction; but what intrigued Dr. Keller, rather, was the evolution of society itself under such conditions, and the opportunity this afforded for satire.

But cautionary tales like "The Revolt of the Pedestrians" stood in the

early days of magazine science-fiction as something of a dissenting opinion or minority report, in counterpoint to the prevailing scientism of Hugo Gernsback's editorials. As for the Burroughs type of adventure-story, Gernsback may have run them as a hedge against his basic bet, attracting readers to the magazine who would not have cared for his more technically-oriented tales. In any event, the technical and scientific commitment never wavered; and Gernsback was not deterred from his quest by the demise of one family of magazines. Within weeks after the forced sale of *Amazing Stories,* the garish primary colors that characterized cover paintings by Frank R. Paul were adorning a brace of new publications, *Science Wonder Stories* and *Air Wonder Stories.*

Volume One, Number One of the former was inaugurated with a typical Gernsback editorial: "It is the policy of *Science Wonder Stories* to publish only such stories that [sic] have their basis in scientific laws as we know them, or in the logical deduction of new laws from what we know." This time, the magazine's founder buttressed his claim to scientific respectability by enlisting a panel of experts "to pass upon the scientific correctness of such stories." And an impressive panel it was. As listed in the third issue of *Science Wonder Stories* it included two astronomers, an astrophysicist, three botanists, a chemist, an entomologist, three mathematicians, an M.D., a psychologist, and a zoologist. They were affiliated with reputable institutions: Wellesley, Dartmouth, the Armour Institute; one, Clyde Fisher, was curator of the American Museum of Natural History. Listed under "Physics and Radio" was Lee DeForest, inventor of the triode, the audio oscillator, the phonofilm method of sound recording, and much else.[18] The consultant astrophysicist was Donald H. Menzel of the Lick Observatory, whose subsequent publications included *Selected Papers on Physical Processes in Ionized Plasma, Fundamental Formulas of Physics, Principles of Atomic Spectra,* and, significantly, some memorable debunking of the "UFO's" or flying saucers.[19]

The hopes Gernsback expressed for his new venture in its inaugural editorial were high indeed. As with *Amazing Stories,* he seems to have aimed at a special-interest audience, not so much the general pulp-magazine reader as the zealous amateur chemist, astronomer, or radio experimenter, who might also be reading *Popular Mechanics* or *Scientific American.* Perhaps especially he appealed to the bright but introverted high-schooler destined for Cal Tech or M.I.T., lost in one corner of a prestige-world dominated by athletes, cheerleaders, fancy dressers, and good dancers, who in his loneliness would welcome the colorful appearance each month of *Wonder Stories* as the coming of a friend:

> Science fiction, as published in *Science Wonder Stories,* is a tremendous new force in America. They are the stories that are discussed by inventors, by scientists, and in the classroom. Teachers insist that pupils read them, because they widen the young man's horizon, as nothing else can.[20]

Young men who had been dressed down for reading "those trashy magazines" might well have wistfully queried whether the existence of such teachers and classrooms were anything more than another science wonder story! But in that

golden year 1929 some of their elders were believing in equally extravagant fictions of another sort. It may be worth noting here that the philistine character in Heinlein's story "Requiem" who chastised the hero for reading those magazines and longing for the moon ended by advising him to "stick to your discounts and commissions; that's where the money is."

The Depression seems to have dampened even Hugo Gernsback's exuberance. Magazine circulations dwindled; *Amazing Stories* had had no difficulty in drawing a readership of more than 100,000, but by 1936 Gernsback doubted that that figure could be met by the combined circulations of all the science-fiction magazines together. *Air Wonder Stories* discontinued after a run of eleven issues (July, 1929–May, 1930). Its companion bobtailed its title simply to *Wonder Stories,* reduced its princely bulk and page-size to more menial dimensions, reverted to a rawer grade of pulp paper, went bi-monthly, and—frowsiest touch of all—ceased trimming its edges. (*Amazing,* under its post-Gernsback management with Dr. Sloane as editor, went through the same process of physical deterioration[21]). In a desperate last attempt to keep his magazine afloat, Gernsback proposed to take it off the newsstands and sell it by subscription only.[22] The gambit failed; purchased by a pulp adventure-magazine chain, *Wonder Stories* with its August, 1936 number became *Thrilling Wonder Stories.* Its first editorial paid lip service, at least, to Gernsback's canons of scientific plausibility: the magazine pledged that "the fundamentals of good science-fiction will be scrupulously remembered," and first among these fundamentals was the principle of "never ignoring scientific truth." But a new slogan run in red letters across the bottom of the cover painting suggested that the new management had quite a different perception of their audience: "STRANGER THAN TRUTH".[23]

The depth of the Depression saw also the launching of the third of the pioneering science-fiction magazines. Surviving to our own day under the name *Analog,* this one has acquired a certain dowager gentility; but forty years ago it called itself, with less restraint, *Astounding Stories of Super-Science.* The contrast in tone with Gernsback's *Wonder* and Sloane's *Amazing Stories* was marked. In *Amazing's* more affluent days (ca. 1927), a strip of type at the bottom of the front cover had listed its companion magazines: *Radio News, Science and Invention, Radio Listener's Guide, Radio Internacional,* and—typically, for the period—*Spare-Time Money Making.* By way of contrast, *Astounding's* first contents page listed among its fellow-travelers in the Clayton magazine chain such titles as *Ace-High, Ranch Romances, Cowboy Stories, Clues, All Star Detective Stories, Flyers, Forest and Stream,* and *Miss 1930.* Nevertheless, in a kind of pulp parody of Gernsback, editor Harry Bates made the same kind of predictive claim. There had been a time when the idea of circumnavigating the earth, or of wireless telegraphy, aircraft, sixty-story buildings, radio, and so on, would have seemed fantastic, and "That is the only real difference between the astounding and the commonplace—Time."[24] Ordinarily, however, Bates did not even write editorials. He started a letter-column, *de rigueur* with science-fiction readers by that time, but otherwise he let the raw pulp action-adventures brawl on.[25]

In 1933 the Clayton chain (which had won the esteem of the pulp writers

themselves by paying 3 ¢ a word, princely wages for those times),[26] failed; *Astounding Stories* skipped seven months and then re-appeared under the imprint of Street and Smith, another chain publisher. The new editor, F. Orlin Tremaine, promptly began to upgrade the magazine's contents, both scientific and literary. There were, no doubt, compromises with the Gernsback ideal, of the same kind that Gernsback and Sloane had sometimes committed; Tremaine is accused for example of having rejected at least one story, Eric Frank Russell's "Eternal Re-diffusion," as "being too difficult for the reader to grasp."[27] On the other hand, the new editor introduced what he called the "thought-variant" story, opening the way to bold, if sometimes shaky, philosophical speculations and, more cautiously, to the breaking of a few magazine taboos.[28]

Taking a cue from his competitor, Dr. Sloane, Tremaine also commenced running factual articles, which by 1937 had become quite solid expository essays. Willy Ley, formerly vice-president of the *Verein für Raumschiffahrt* and a member of the numerous German refugee class of '33,[29] wrote for Tremaine's *Astounding* "The Dawn of the Conquest of Space," a sober discussion of the advantages of liquid-fueled over solid-fueled rockets, and R.D. Swisher contributed "What Are Positrons?," an admirable explanation in laymen's language of the Dirac theory.[30] Tremaine encouraged the readers, also, to address themselves to technical questions. "I have been pleased to see serious discussions of scientific data creeping into Brass Tacks" [the magazine's name for its letter-column], Tremaine noted, and in the November 1936 issue, partly on the ground that by their treatment of stories and artwork in terms of superficial likes and dislikes the letters to the editor were becoming monotonous, he announced that he was converting the "Brass Tacks" department into "Science Discussions."[31]

Tremaine described this change with an enthusiasm that out-Gernsbacked Gernsback: "There is no reason why *Astounding* should not serve as an exponent of scientific advancement." Out of the readers' bull-sessions in "Science Discussions," the editor predicted, could come major scientific breakthroughs: "We must so plan that twenty years hence it will be said that *Astounding Stories* has served as the cradle of modern science." Somehow it did not work out that way. Within the limits of their own scientific competence some readers sought to comply, submitting letters to "Science Discussions: the Open House of Scientific Controversy" on spectroscopy, rocket engineering, mathematical puzzles, the effect of liquid air on magnetism, or, in one case, a hypothesis to account for the retrograde motion of Jupiter IX.[32] But they also took up great amounts of space riding hobby-horses such as the Atlantis hypothesis, or whether for interplanetary flight the achievement of escape velocity was really necessary. Tremaine's successor as *Astounding's* editor, John W. Campbell, Jr.—whose scientific credentials were rather more impressive than Tremaine's[33]—quietly reversed the priorities, changing the name of the column to "Brass Tacks and Science Discussions."[34]

If "Science Discussions" never quite raised *Astounding* into a vest-pocket version of the proceedings of the Royal Society, nevertheless the scientific

criticism in these letters from readers did serve to discipline the science served up in the stories. In the *Amazing Stories* "Discussions" column under Sloane and in the "Reader Speaks" department in *Wonder Stories* under Gernsback, vigilant readers had frequently spanked authors for factual errors in their fiction (e.g., providing the moon with an atmosphere), and they continued to do so in *Astounding's* "Brass Tacks" under Campbell. For example, when Alexander M. Phillips contributed to *Astounding* in 1940 a story titled "A Chapter From the Beginning," detailing an adventure of a shambling primordial hominid named Nwug, one alert reader deduced that the story was supposed to have taken place in North America during the Miocene period, and that the life-forms Phillips described as existing then were, from the standpoint of paleontology, anachronisms; moreover, that a being so relatively advanced as Nwug would definitely not have walked on its knuckles.[35]

The scientific interest of many readers ran ahead of their actual expertise, but enough men with advanced degrees in science or engineering read the magazines and wrote the editors to give these criticisms some show of authority. There were other limitations, of course, as to how effective this sort of discipline could be. Some of the writers, who had themselves started out as science-fiction "fans," turning out amateur fiction and literary criticism in their mimeographed fan magazines prior to turning professional, eagerly accepted the Gernsback-Sloane-Tremaine-Campbell guidelines. Others, however, impatient at the necessity for interrupting their story-line in order to get the science straightened out—they were, after all, writing for cash for magazines published as men's-adventure pulps where fast action was the *sine qua non*, and they were not being paid anything extra for doing encyclopedia research—found ways of finessing the science-fiction editors' and readers' requirements. As a letter to *Astounding Stories* pointed out in 1934, a great many writers were able to create superscientific marvels by the simple expedient of coining words: "subatomic condensers, geodynes, neutronic pistols, and such." But, this skeptical reader cautioned, "a tale wherein the hero dissolves the villain with a protonic blast cannot claim to be science-fiction if the sceince part of it consists only of the name of the weapon."[36]

Many readers eventually developed an indulgent affection for this kind of foolishness, in which "Buck Rogers chases Killer Kane through Martian skies with a flying belt and Jack Williamson uses his famous geo...s—supply your own endings, they all sound good—to send the villain to perdition in the vastness of inter-universal space."[37] Moreover, the editors themselves, even men as conscientious as John W. Campbell and T. O'Conor Sloane, occasionally sabotaged the effort at scientific exactness in the interest of telling a good story. Sloane, for example, did not personally believe in interplanetary travel as a practicable possibility, but he justified publishing stories on that theme nevertheless, "since our readers like inter-planetary stories; since they unceasingly ask for them in letters to us, and since there is any amount of science . . . to be gleaned therefrom";[38] and Campbell, chided by several readers for having accepted and published one story based upon an astronomical impossibility, replied that the basic idea was "interesting enough to make the flaw forgiveable."[39]

Years afterward, in 1968, Campbell made this policy quite explicit: "Minor goofs in science—provided they're not crucial to the theme of the story—can be forgiven." Nevertheless, he warned prospective writers for his magazine, the manuscripts most frequently rejected were those written by "people who don't know the difference between science fiction and fantasy"[40]—a difference succinctly stated by Robert Heinlein, who has defined the former genre as "speculative fictions in which the author takes as his first postulate the real world as we know it, including all established facts and natural laws. The result can be extremely fantastic in content, but it is not fantasy."[41] More loosely, F. Orlin Tremaine had declared in 1934 that "*Astounding Stories* is, perforce, a medium of logical fantasy,"[42] and outside experts—particularly formal literary critics—in dealing with the medium have tended to dwell upon the fantasy and overlook the logic.

But the effort to safeguard the integrity of the science in science-fiction seems, in the better magazines at least, to have been quite sincere, and nothing infuriated regular readers of science-fiction more than to have an "outsider" patronize their field by asserting, as Phil Stong did in 1941, that "the first requirement of a good fantastic story—and half the magazines who [sic] specialize on these things neglect the fact—is that it should not be even remotely possible."[43] "No self-respecting editor (even of a fantasy magazine) or writer goes on such a basis," the science-fiction fan, author, and editor Donald A. Wollheim indignantly replied.[44] But misconceptions such as Stong's have continued to recur. Thus a book review in 1968, noting that science-fiction seemed to be achieving a wider audience—"What was once a radio technician's pastime is slowly becoming the literature of this half-century"—nevertheless considered it a conscious manifestation of the Absurd, ignoring its basic seriousness.[45]

There was, of course, the embarrassing possibility that even when the science in the stories was accurate, as far as anyone could tell at the time they were written, the scientists themselves might one day change their minds.[46] Moreover—and this is crucial—there are other kinds of implausibilities besides the purely scientific. "You haven't a single author on your payroll who displays any real social insight," complained one British reader of *Astounding*, J.E. Enever, early in 1940. "Briefly, you can do with some H.G. Wellses or Olaf Stapledons to supplement your army of Vernes."[47] The charge was not quite fair—there had been throughout the 1930's an occasional Nathan Schachner, David H. Keller, or Miles J. Breuer who had engaged, sometimes clumsily, in social criticism—but on the whole it was just, and it is a criticism of science-fiction which (quite rightly) has continued to be made.[48] But the situation was changing. Ironically, on the page just previous to Enever's letter were printed the concluding paragraphs of a two-part serial which attempted to apply to its predictions the insights of the social as well as the natural sciences, Robert Heinlein's "If This Goes On—", and the following issue of *Astounding* saw the first installment of L. Ron Hubbard's "Final Blackout," a somber forecast—with no technological gimmickry—of one possible outcome of the then-raging Second World War.[49]

Even on this score, the magazines in a sense had the last word. The October, 1939 number of *Amazing Stories*, appearing on the newsstands in the

month of August, carried a grim tale of a renewed outbreak of war in Europe. Entitled "Judson's Annihilator," the story was based on the major premise that "the scientists' brains have built the twentieth century; their morals will blow it to bits." In the story an aerial invasion of England is thwarted when the fleet of enemy warplanes is warped into another era by time-machine; but this is no conventional evil-Nazis-versus-pure-Englishmen epic. The English hero enters that future time only to discover—as have the German fliers who preceded him—that regardless of which side "wins" the present war, the world will become a savage ruin. "When I began to plan this story," its British author John Beynon Harris explained, "I found that there was no need to use that hoary old standby the mad scientist . . . when the reputedly sane scientists are quite efficiently getting on with the job of world destruction before our eyes."[50] And the brief essay describing the magazine's back cover for that month (a painting of an atomic power plant) noted that atomic energy could also be employed in war, releasing "power so terrible that entire cities might be blasted away."[51]

On August 6, 1945, over a crowded city in Japan, the extravagant fiction of today became the cold fact of tomorrow. It threw the science-fictionists into a moral dilemma that Hugo Gernsback probably never anticipated, and on behalf of his colleagues the science-fiction and popular-science writer Isaac Asimov made what amounted to an act of contrition. "Well, the atomic bomb came, and it finally made science fiction 'respectable'," Asimov wrote:

> For the first time, science-fiction writers appeared to the world in general to be something more than a bunch of nuts; we were suddenly Cassandras whom the world ought to have believed. But I tell you, I would far rather have lived and died a nut in the eyes of all the world than to have been salvaged into respectability at the price of nuclear war hanging like a sword of Damocles over the world forever.[52]

If the recoil from the extravagant fact of today could be so strong, how deeply rooted had been the Gernsbackian commitment to cold reality in the fiction of tomorrow? Had most science-fiction readers experienced merely a *frisson* from the stories, of the kind a hard-headed skeptic might get from a ghost story well-enough told to convince him momentarily that "this could be true"? The question is not entirely rhetorical; early in 1939 Campbell launched a companion magazine to *Astounding Science-Fiction,* called *Unknown.* Although the new publication dealt not in rocket ships and ray guns but in elves and witches and vampires, it was quickly apparent that the two magazines had heavily overlapping constituencies.[53] The paradox was not lost on alert readers (and writers): "The Jekyll-science-fictionist stands for experimental truth, for logic, for *proof.* The Hyde-nocturnal-seeker exists in frank fear of the dark, in the world of dreams, . . . of witches'-brew, of curses, of Kismet . . . Fantasy fiction," concluded Seymour Kapetansky, "has bred the most illogical double-track mind in history," able to enjoy both the brisk technocratic forecasts of *Astounding* and the sinister revenants in *Unknown.*[54]

Of course, the paradox may be more apparent than real. The fact of today may have become so extravagant that no mere fiction can cope with it. In 1927, back in Gernsback's heyday, Clarence E. Ayres compared the findings of modern science with the messages of ancient Israel's prophets, and found them equally fabulous:

> These men tell tales of the creation of all living things from primordial ooze, of the origin of the earth from spouts of incandescent gas from the sun, of rays that penetrate the solidest-seeming stuff. . . . They sing of matter which is not matter but energy . . . which changes places from moment to moment, and of different moments which are simultaneous in different locations. These are the real marvels of the age of science. We must not dismiss them lightly because we believe that they are true. . . .
>
> To be sure, science does not represent itself as folklore. . . . Folklore never does. We must not imagine Moses coming down from Mount Sinai and urging Joshua and Aaron to bear in mind that his various narratives are folklore. It was enough that they were marvelous. . . . But it should also be a mistake to suppose that the Israelites were as surprised by Moses' story as we should be, or as surprised as they would have been to hear him say that he had been borne through the clouds at one hundred twenty miles to the hour and accompanied by the sound of an awful roaring. Sufficient unto the day is the folklore thereof.[55]

A fiction which celebrated a "fact" so numinous as this would inevitably, *malgré lui,* break down the logical classificatory barriers between "science-fiction" and "fantasy," rigorously held though that barrier consciously was. Even a casual thumbing of the crumbling pulp-paper pages of these old magazines turns up stories, putatively science-fiction by Gernsback's (or Robert Heinlein's) definition, which at deeper evocative levels have quite a different meaning. Perhaps the antithetical critical judgments of the "outside" literary critic, neglectful if not hostile toward the disciplinary role of science in the stories, and the "inside" science-fiction partisan and missionary, often insensitive to broader historical and cultural concerns, may here one day be fused.

NOTES

1Yule G. Sills, "Social Science Fiction," in David L. Stills, ed., *International Encyclopedia of the Social Sciences* (New York: Macmillan/Free Press, 1968), 473-481; R.Z. Sheppard, "Future Grok," *Time,* March 29, 1971, 86-89.

2Robert A. Heinlein, "Requiem," *Astounding Science-Fiction,* XXIV (January, 1940), 80-91. An admirably complete bibliography of Heinlein's work down through 1967 can be found in Alexei Panshin, *Heinlein in Dimension: a critical analysis* (Chicago: Advent Publishers, 1968).

[3]Hugo Gernsback, "The Lure of Scientifiction," *Amazing Stories,* I (June, 1926), p. 195; "Fiction Versus Fact," *ibid.,* I (July, 1926), p. 291.

[4]Hugo Gernsback, "A New Sort of Magazine," *Amazing Stories,* I (April, 1926), p. 3; *ibid.,* XXXV (April, 1961), p. 5.

[5]Hugo Gernsback, "A New Sort of Magazine," as previously cited.

[6]Quoted in a Gernsback editorial, "Thank You!", *ibid.,* I (May, 1926), p. 99.

[7]Sam Moskowitz, *Explorers of the Infinite: Shapers of Science Fiction* (Cleveland and New York: World Publishing Company/Meridian Books, 1963), pp. 239f., 321; *New York Times,* Feb. 21, 1929, p. 32; *ibid.,* March 29, 1929, p. 13.

[8]T. O'Conor Sloane, "The Atom and the Stars," *Amazing Stories,* V (September, 1930), p. 485.

[9]Edmond Hamilton, "Devolution," *ibid.,* X (December, 1936), 90-101; this quotation at p. 93.

[10]Isaac Asimov, *Opus 100* (Boston: Houghton Mifflin, 1969), p. 16.

[11]*Amazing Stories,* I (July, 1926), 312-318; *ibid.,* p. 291.

[12]H. P. Lovecraft, "The Colour Out of Space," *ibid.,* II (September, 1927), 556-567; Howard Phillips Lovecraft to Farnsworth Wright, July 5, 1927, in H.P. Lovecraft, *Selected Letters,* II, *1925-1929,* ed. by August Derleth and Donald Wandrei (Sauk City, Wisconsin: Arkham House, 1968), 149-151.

[13]Edgar Rice Burroughs, "The Land That Time Forgot," *Amazing Stories,* I (February, 1927), 982-1007; (March, 1927), 1138-1180; II (April, 1927), 64-98. This story was essentially a reworking of the theme of Sir Arthur Conan Doyle's *The Lost World.*

[14]In the course of reprinting the established classics of science-fiction Gernsback did publish "The War of the Worlds" in *Amazing Stories,* II (August, 1927), 422-450; (September, 1927), 568-597, 609—and artist Paul did Wells's Martians to a turn, both in a cover painting and in the interior illustrations.

[15]See Bernard Bergonzi, *The Early H.G. Wells: A Study of the Scientific Romances* (Toronto: University of Toronto Press, 1962), *passim.*

[16]Keller's somewhat Luddite outlook is most clearly reflected in his novel "The Metal Doom," serialized in *Amazing Stories,* VII (May, 1932), 104-119, 131; (June), 250-266; (July), 330-337, 355. See particularly his indictment of the "old," *i.e.,* the present, civilization, on p. 335.

[17]David H. Keller, "The Revolt of the Pedestrians," *ibid.,* II (February, 1928), 1048-1059.

[18]Hugo Gernsback, "Science Wonder Stories," *Science Wonder Stories,* I (June, 1929), p. 5; *ibid.,* (August, 1929), p. 197.

19Menzel's UFO study in collaboration with Lyle G. Boyd, *The World of Flying Saucers: A Scientific Analysis of a Major Myth of the Space Age* (Garden City: Doubleday, 1963), was cited in a congressional hearing on that phenomenon. *Unidentified Flying Objects,* Hearing by the Committee on Armed Services of the House of Representatives, no. 55, Eighty-ninth Congress, Second Session, April 5, 1966 (Washington: Government Printing Office, 1966), p. 6000.

20Gernsback, "Science Wonder Stories," *Science Wonder Stories,* I (June, 1929), p. 5.

21Beginning with the June, 1938 issue, *Amazing Stories* moved to Chicago under still a third owner, Ziff-Davis, Inc.; but a lingering tribute was paid to the Gernsback tradition in a subtitle carried on the front cover for the first year or so under Ziff-Davis: "All Stories Scientifically Accurate."

22*Wonder Stories,* VII (April, 1936), p. 921.

23*Thrilling Wonder Stories,* VIII (August, 1936), p. 10.

24Harry Bates, "Introducing Astounding Stories," *Astounding Stories of Super-Science,* I (January, 1930), p. 7.

25Toward the end of the Clayton regime Bates occasionally broke this editorial silence. See "Just Around the Corner," in *ibid.,* XI (January, 1933), p. 297, and "The Expanding Universe," *ibid.,* XII (March, 1933), p. 5.

26A decade later, the base rate for the more affluent magazines—*Amazing* and *Astounding*—was still only 1 ¢ a word, on acceptance. Some of their competitors were paying 1/2 ¢, and then only on publication.

27Sam Moskowitz, *Seekers of Tomorrow: Masters of Modern Science Fiction* (New York: Ballantine Books, 1967), p. 141.

28One taboo was broken in the very first "Thought-variant," Nathan Schachner's *Ancestral Voices (Astounding Stories,* XII (October, 1933), 70-81), when the author referred to a "Herr Hellwig," who as Dictator of "Mideurope" was given to ranting speeches that claimed Caesar's Gaulish foe Vercingetorix as the "Mideuropeans' " ancestor—a thinly veiled reference, of course, to Hitler and to Nazism. By contrast, Gernsback's *Wonder Stories,* under fire from some readers for publishing German science-fiction in translation and thereby contributing to Nazi Germany's foreign earnings, was treating Hitler and the Nazis with great circumspection: "What the leader of Germany does to or for the German people is for the Germans to think about." Hugo Gernsback, replying to a letter to the editor from Donald A. Wollheim, *Wonder Stories,* VI (March, 1935), p. 1265.

29See Willy Ley, *Rockets: The Future of Travel Beyond the Stratosphere* (New York: Viking, 1944), Chap. 6: "Success, Failure, and Politics," esp. p. 153. This material was adapted from Ley, "The End of the Rocket Society," *Astounding Science-Fiction,* XXXI (August, 1943), 64-78, and XXXII (September, 1943), 58-75.

[30]Willy Ley, "The Dawn of the Conquest of Space," *Astounding Stories,* XIX (March, 1937), 104-110; R.D. Swisher, "What Are Positrons?", *ibid.,* XIX (August, 1937), 117-121.

[31]F. Orlin Tremaine, "Blazing New Trails," *ibid.,* XVII (August, 1936), p. 154; Tremaine, "Science Discussions," *ibid.,* XVIII (November, 1936), p. 123. The change was made official with XVIII (February, 1937), 150ff., although Tremaine later hedged a little by retitling the column "Science Discussions and Brass Tacks." *Ibid.,* XX (December, 1937), 153ff.

[32]Tremaine, "Science Discussions," *ibid.,* XVIII (December, 1936), p. 152; Charles Chauncey Parsons, in *ibid.,* XIX (June, 1937), 158-159.

[33]Tremaine's previous editorial experience had been outside the science and science-fiction fields; he is credited by Sam Moskowitz as "a crack editorial hand, veteran of top posts at *Smart Set, True Story,* and the Clayton pulp chain." Moskowitz, *Seekers of Tomorrow,* p. 25. Campbell, by comparison, had a degree in physics from Duke University, and had been writing both science-fiction and factual articles for several years before he became *Astounding's* editor. *Ibid.,* Chap. 2.

[34]This change took place in *Astounding Science-Fiction,* XXII (November, 1938), 151-160. In May, 1941, the name of the column reverted to "Brass Tacks"—but it continued to carry criticism of the science in the stories, and some scientific speculation as well.

[35]C.J. Gregg, letter to the editor, *Astounding Science-Fiction,* XXV (May, 1940), 153-155, commenting on A.M. Phillips, "A Chapter From the Beginning," *ibid.,* March, 1940, pp. 84-98.

[36]E.B. Brown, letter to the editor, *Astounding Stories,* XIV (October, 1934), p. 153.

[37]Charles W. Jarvis, letter to the editor, *Astounding Science-Fiction,* XXIV (December, 1939), p. 103.

[38]T. O'Conor Sloane, "Acceleration in Interplanetary Travel," *Amazing Stories,* IV (November, 1929), p. 677.

[39]John W. Campbell, Jr., replying to Louis Russell Chauvenet, letter to the editor, *Astounding Science-Fiction,* XXIX (May, 1942), p. 104. The story under discussion was Vic Phillips, "Defense Line," *ibid.,* XXVIII (December, 1941), 115-154.

[40]John W. Campbell, "Science Fiction We Can Buy," *The Writer,* LXXXI (September, 1968), p. 27.

[41]Robert A. Heinlein, as cited in Virginia F. Bereit, "The Genre of Science Fiction," *Elementary English,* XLVI (November, 1969), p. 896.

[42]F. Orlin Tremaine, announcement in "Brass Tacks," *Astounding Stories,* XII (October, 1933), p. 138.

43Phil Stong, Foreword to *The Other Worlds* (New York, 1941), reprinted as *25 Modern Stories of Mystery and Imagination* (Garden City, N.Y.: Garden City Publishing Company, 1942), p. 5.

44Donald A. Wollheim, reviewing Stong, *op. cit.*, in *Astonishing Stories*, III (September, 1941), 6-7.

45Michael Feingold, "Doing the Universe Wrong," *New Republic*, CLIX (November 2, 1968), p. 34.

46Isaac Asimov, *op. cit.*, p. 28, gives examples of this kind of obsolescence having overtaken some of his own stories.

47J.E. Enever, letter to the editor, *Astounding Science-Fiction*, XXV (March, 1940), p. 151. See also the letter by Sam Salant in *ibid.*, XXX (February, 1943), asking for "Fewer ray guns . . . less blood and thunder . . . and, most of all, more emphasis on the social sciences and psychology" in the stories.

48One of the most comprehensive discussions of the limitations—and, on occasion, the freedoms—of science-fiction in this area of social commentary remains that of O. Shaftel, "The Social Content of Science Fiction," *Science and Society*, XVII (1953), 97-118. See also Basil Davenport, ed., *The Science Fiction Novel: Imagination and Social Criticism* (Chicago: Advent Publishers, 1959).

49Robert A. Heinlein, "If This Goes On—," *Astounding Science Fiction*, XXIV (February, 1940), 9-40, and XXV (March, 1940), 117-151; L. Ron Hubbard, "Final Blackout," *ibid.*, XXV (April, 1940), 9-37, (May, 1940), 121-147, (June, 1940), 113-151.

50John Beynon Harris, "Judson's Annihilator," *Amazing Stories*, XIII (October, 1939), 104-135; explanatory comments by Harris in "Meet The Author," *ibid.*, p. 146.

51*Ibid.*, p. 145. Sam Moskowitz has argued that World War One had a similar sobering influence on the science-fiction published in general and "mainstream" magazines during the late Victorian and Edwardean eras. Moskowitz, *Science Fiction by Gaslight: a History and Anthology of Science Fiction in the Popular Magazines, 1891-1911* (Cleveland and New York: World Publishing Company, 1968), p. 35.

52Isaac Asimov, *op. cit.*, pp. 147f.

53This had been true to a lesser extent also of the Gernsback-founded magazines and of *Weird Tales*, whose origins antedated the founding of *Amazing* by three years. Although *Weird Tales* carried some science-fiction, it had also a strong element of Gothic supernaturalism, and its editor, Farnsworth Wright, had to straddle between one constituency of readers who also read *Amazing Stories* and another of readers who wanted no science at all in the stories. Moskowitz, *Explorers of the Infinite* p. 320.

[54]Seymour Kapetansky, letter to the editor, *Astounding Science-Fiction*, XXIV (October, 1939), 155-156.

[55]Clarence E. Ayres, *Science: The False Messiah* (Indianapolis: Bobbs-Merrill, 1927), pp. 21ff.

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